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# A REPORT ON LAND USE PROBLEMS IN OREGON

December 1934

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# A REPORT ON LAND USE PROBLEMS IN OREGON

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By

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December 1934

# A REPORT ON LAND USE PROBLEMS IN OREGON

A discussion of land use problems might well be entered into by stating the nature of a land problem. In other words, under what conditions does land become a problem? In the report which follows the premise has been that a land area becomes a problem whenever it is so used that the public as a whole is now injured and will in the future be injured by this use. Under this concept the land use may be quite profitable for the present operator yet the land so operated may constitute a problem. Such a concept may be somewhat idealistic, it is true, yet can we continue as a nation to allow our land and other national resources to be exploited for the benefit of the immediate operators, or must we face about and give some protection to the general public interest. It is believed that the recent depression years have clearly indicated that public interest must receive increasing attention. In most instances, of course, public and private interests are synonomous for unless a private operator can pay his taxes and make a living it is unlikely that the land use is beneficial to either the operator or the public.

This report has been prepared under the general direction of the Land Planning Section of the National Resources Board which was created by executive order on June 30, 1934. A preliminary report covering some of the same subject matter was submitted to the National Resources Board on September 15, 1934. This report embodies the material included in the September report and in addition as much supplementary material as it was possible to prepare in the time available.

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Acknowledgements: The author wishes to express his grateful appreciation for the assistance and cooperation of the many individuals and agencies who so willingly supplied material used in this report. Especial credit is due Sinclair A. Wilson and H. J. Andrews of the Pacific Northwest Forest Experiment Station, F. H. Brundage and F. V. Horton of the U. S. Forest Service, H. D. Scudder, E. L. Potter, C. V. Ruzek and W. L. Powers of the Oregon Agricultural Experiment Station, and E. B. Hurd of the U. S. Department of Agriculture.

The following discussion of land use problems is divided into five sections, namely; land ownership, present major land uses, land problem areas, possible relocation areas, and suggested land use policies. The discussion is primarily from the agricultural view point for the United States Forest Service and the Pacific Northwest Forest Experiment Station have already prepared comprehensive reports dealing with the use of timbered lands.

## LAND OWNERSHIP

Many of Oregon's land use problems are inherent with the ownership of Oregon lands. For example, the problems that arise as a result of public ownership of lands are in most instances different in character from the problems associated with privately owned lands. Moreover, a different approach is necessary to the solution of the same type of problem on private lands and on public lands which further complicates the procedure that must be followed where public lands comprise a substantial portion of an area.

In round figures, about 32,000,000 acres, or approximately half of the land area of Oregon is held in public ownership while the other half is owned by individuals and corporations. (Table 1) Of the publicly owned land, about 95 per cent is owned by the various divisions of the federal government. With such a large percentage of the state publicly owned, it becomes necessary to have a thorough understanding of the various types of public and private ownership before land problems and possible land problem solutions are considered.

### Privately Owned Lands In Oregon

About one-third of the privately owned land in Oregon is in western Oregon and two-thirds is in eastern Oregon which is roughly proportional to the respective land area of the two sections. (Table 2)

TABLE 1. OWNERSHIP OF OREGON LANDS, 1935

| Nature of ownership | Acres | Percentage of total acres |
|---|---|---|
| Land in farms owned by individuals or corporations | 16,340,149 | 26.7 |
| Timber lands not in farms owned by individuals and/or corporations | 8,675,940 | 14.2 |
| Non-forest land not in farms which is owned by individuals and/or corporations* | 4,421,930 | 7.2 |
| TOTAL OF PRIVATELY OWNED LANDS | 29,438,019 | 48.1 |
| National Forests | 13,416,344 | 21.9 |
| Unappropriated and unreserved public domain including grant lands | 13,012,158 | 21.3 |
| Public domain, including grant lands, reserved for special uses | 1,879,220 | 3.1 |
| Unallotted Indian lands | 1,495,680 | 2.4 |
| Miscellaneous federal lands* | 200,000 | .3 |
| Total Federal Lands | 30,003,402 | 49.0 |
| Land in farms administered by State Land Board or Veterans' State Aid Commission | 208,529 | .4 |
| State Parks | 13,536 | - |
| State Forest | 76,466 | .1 |
| School grant land administered by the State Land Board | 698,529 | 1.2 |
| Total State Lands | 997,060 | 1.7 |
| County owned lands acquired by tax sales* | 700,000 | 1.1 |
| Lands owned by municipalities* | 50,000 | .1 |
| Total County and Municipal Lands | 750,000 | 1.2 |
| TOTAL OF PUBLICLY OWNED LANDS | 31,750,462 | 51.9 |
| TOTAL FOR STATE | 61,188,481 | 100.0 |

* Items marked by asterisk are estimates based on incomplete official figures.

Source of Data: U. S. Census, U. S. Land Office reports, Forest statistics issued by the Pacific Northwest Forest Experiment Station. Data on state lands furnished by administrative agencies.

TABLE 2. APPROXIMATE DISTRIBUTION OF PRIVATELY OWNED LAND BY COUNTIES

| County | Total land in farms | Timber land not in farms | Non-forest land not in farms * | Total of privately owned land |
|---|---|---|---|---|
| Benton | 221,122 | 61,526 | 3,080 | 285,728 |
| Clackamas | 289,872 | 222,515 | 13,450 | 525,837 |
| Clatsop | 74,301 | 399,162 | 13,160 | 486,623 |
| Columbia | 116,654 | 229,115 | 10,105 | 355,874 |
| Coos | 224,979 | 424,015 | 18,352 | 667,346 |
| Curry | 113,715 | 237,362 | 4,725 | 355,802 |
| Douglas | 655,585 | 747,995 | 7,727 | 1,411,307 |
| Hood River | 35,842 | 72,897 | 3,529 | 112,268 |
| Jackson | 285,379 | 492,076 | 67,720 | 845,175 |
| Josephine | 104,470 | 167,590 | 810 | 272,870 |
| Lane | 512,041 | 677,061 | 18,183 | 1,207,285 |
| Lincoln | 99,197 | 287,504 | 2,186 | 388,887 |
| Linn | 468,303 | 382,833 | 10,075 | 861,211 |
| Marion | 398,933 | 69,020 | 11,622 | 479,575 |
| Multnomah | 76,040 | 64,017 | 50,580 | 190,637 |
| Polk | 244,744 | 117,037 | 3,928 | 365,709 |
| Tillamook | 81,747 | 423,767 | 7,099 | 512,613 |
| Washington | 234,532 | 184,645 | 3,645 | 422,822 |
| Yamhill | 287,224 | 62,956 | 4,842 | 355,022 |
| TOTAL WESTERN OREGON | 4,524,680 | 5,323,093 | 254,818 | 10,102,591 |
| Baker | 656,363 | 157,400 | 128,505 | 942,268 |
| Crook | 622,848 | 143,147 | 289,532 | 1,055,527 |
| Deschutes | 139,261 | 362,045 | 336,029 | 837,335 |
| Gilliam | 685,687 | - | - | 685,687 |
| Grant | 893,359 | 383,519 | 19,117 | 1,295,995 |
| Harney | 767,676 | 60,619 | 653,620 | 1,481,915 |
| Jefferson | 614,846 | 115,922 | 150,885 | 881,653 |
| Klamath | 563,937 | 687,219 | 699,536 | 1,950,692 |
| Lake | 741,229 | 387,670 | 131,902 | 1,260,801 |
| Malheur | 555,858 | 1,150 | 1,501,067 | 2,058,075 |
| Morrow | 1,208,790 | 82,074 | - | 1,290,864 |
| Sherman | 433,180 | - | - | 433,180 |
| Umatilla | 1,374,631 | 216,331 | - | 1,590,962 |
| Union | 453,450 | 293,230 | - | 746,680 |
| Wallowa | 549,052 | 268,554 | 250,940 | 1,068,546 |
| Wasco | 878,320 | 57,500 | 5,979 | 941,799 |
| Wheeler | 676,982 | 136,467 | - | 813,449 |
| TOTAL EASTERN OREGON | 11,815,469 | 3,352,847 | 4,167,112 | 19,335,428 |
| TOTAL FOR STATE | 16,340,149 | 8,675,940 | 4,421,930 | 29,438,019 |

* Includes cities, rock barrens, sand dunes, and scattered tracts of grazing land not operated as a part of a farm or ranch.

Note: In this report Hood River county has been designated as a western Oregon county as land conditions in this county are more typical of western than eastern Oregon.

The general character of the privately owned land differs considerably between the two sections of the state. Probably this is best shown by the following tabulation.

| Land | Western Oregon | Eastern Oregon |
|---|---|---|
| Land in farms | 45% | 61% |
| Timber land not in farms | 53 | 17 |
| Non-forest land not in farms | 2 | 22 |
| TOTAL | 100% | 100% |

In brief, the above classification of land indicates (1) land controlled primarily for crop production and grazing (land in farms); (2) land controlled primarily for timber production (timber land not in farms); and (3) land, largely uncontrolled and lying idle, much of which is waste or low value grazing land owned in conjunction with adjacent properties of greater value (non-forest land not in farms).

The major uses of these various land classes will be covered in the discussion of major land uses. It should be pointed out here, however, that but 30 per cent of the land in farms is crop land or plowable pasture. Moreover, this varies from 39 per cent for western Oregon down to 27 per cent for eastern Oregon where farms (ranches) frequently include vast areas of range land.

Many and varied land problems are found on privately owned lands. Often they are not readily discernible because of the difficulty of distinguishing between private and public interest as, for example, when areas of cut-over land are placed on the agricultural land market. On the other hand, areas subject to serious erosion and submarginal farms on which the operator can not make a living are clearly problem areas both from the private and public standpoint.

There appear to be three general classes of problems associated with

privately owned lands. These are (1) problems concerned with excessive depletion of lands such as erosion; (2) problems concerning the correct use of the various soils and areas, such as determining areas best suited to grazing as compared to dry farming; and (3) problems concerning the most advantageous type of ownership for given areas, such as the ownership of non-agricultural cut-over lands.

## Oregon Public Lands

The publicly owned lands of Oregon are, for the most part, low grade. The bulk of these lands are located in the more arid sections east of the Cascade Mountains (see Exhibit 1). About 40 per cent are located in the three southeastern counties of Malheur, Harney and Lake alone.

The chief problems associated with this vast area of public land are (1) to determine what areas can probably be operated more advantageously in public than private ownership, and (2) to enact legislation which will permit division of these lands between public and private ownership after their proper ownership has been determined.

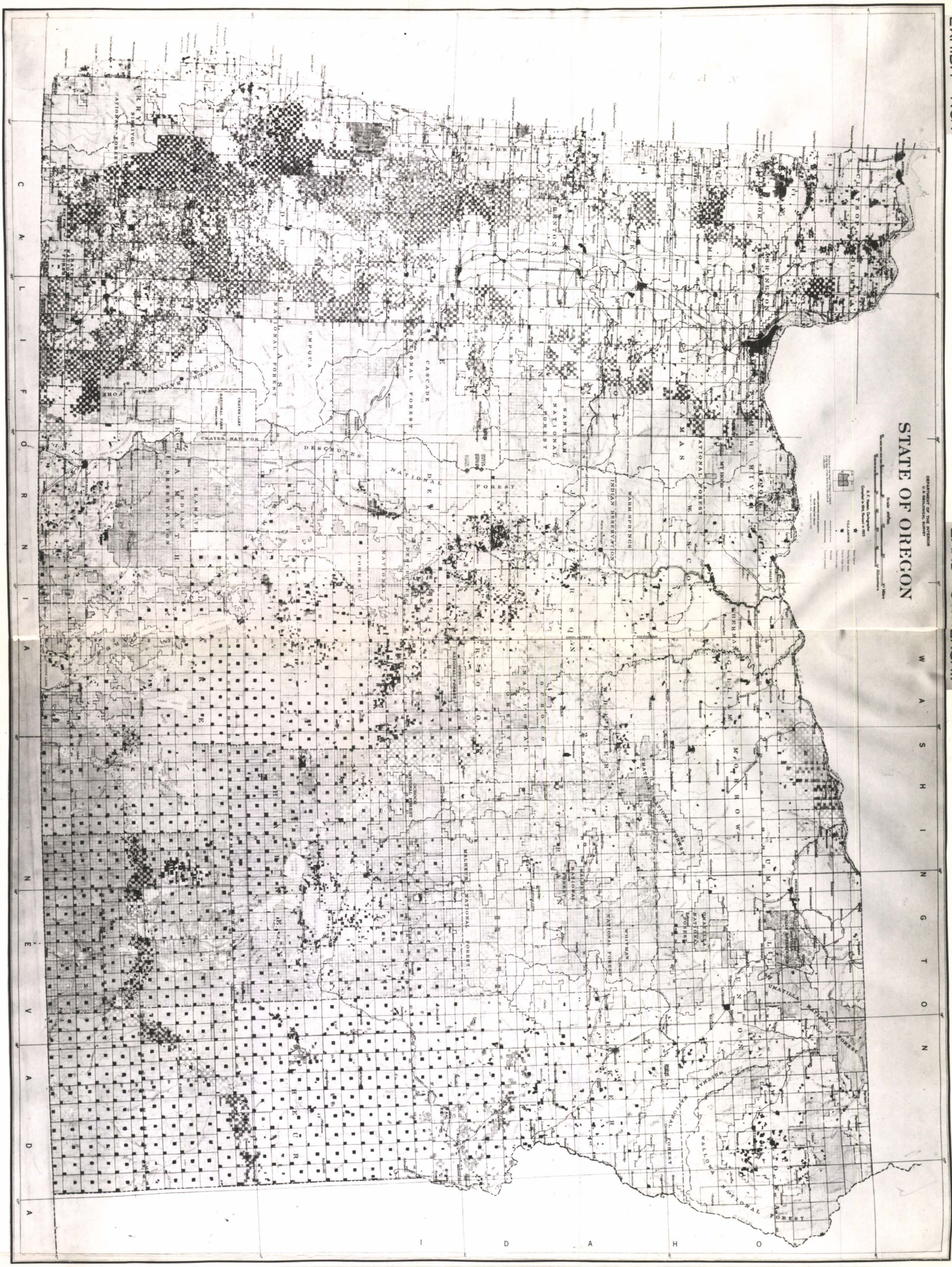
### Federal Lands.

There are about 30,000,000 acres of federal lands in Oregon. Of this acreage, about 13,500,000 acres are national forests; 13,000,000 are unappropriated and unreserved public domain; and the remaining 3,500,000 acres are made up of unallotted Indian lands, revested grant land classed as timber lands, areas reserved for power sites and other miscellaneous purposes, and scattered areas in national parks, national monuments, military reservations, light house reserves, etc.

The unappropriated and unreserved public domain in Oregon consists of about 780,000 acres of revested grant lands, located chiefly in western Oregon, and 12,200,000 acres of the regular public domain. The bulk of the unreserved public domain lands are located in eastern Oregon (see

EXHIBIT NO. 1

LAND OWNERSHIP




Explanatory Note: The original map from which this photostat was made was prepared in colors. Certain colors failed to photograph clearly, particularly the blue used to designate national forest and the purple used to designate public domain.

The checkered areas in western Oregon are O & C revested grant lands. Other areas showing clearly are tax lands (note area near Bend in Deschutes county and areas in Tillamook, Clatsop and Columbia counties), municipal lands and state lands (note 16th and 36th sections in Malheur, Lake and Harney counties). Showing faintly are national forest lands and public domain. Malheur county public domain faded badly as this county should appear similar to Harney county. On the original map privately owned lands were uncolored.

TABLE 3. DISTRIBUTION OF UNAPPROPRIATED AND UNRESERVED PUBLIC DOMAIN IN OREGON

| County | Acres | Percentage of total acres |
|---|---|---|
| Benton | 25,833 | .2 |
| Clackamas | 33,850 | .3 |
| Clatsop | 1,570 | .0 |
| Columbia | 4,023 | .0 |
| Coos | 42,721 | .3 |
| Curry | 32,856 | .3 |
| Douglas | 173,386 | 1.3 |
| Hood River | | .0 |
| Jackson | 281,229 | 2.2 |
| Josephine | 170,644 | 1.3 |
| Lane | 67,572 | .5 |
| Lincoln | 32,856 | .3 |
| Linn | 13,748 | .1 |
| Marion | 9,685 | .1 |
| Multnomah | 320 | .0 |
| Polk | 4,254 | .0 |
| Tillamook | 43,186 | .3 |
| Washington | 2,760 | .0 |
| Yamhill | 9,938 | .1 |
| TOTAL WESTERN OREGON | 950,431 | 7.3 |
| Baker | 266,000 | 2.0 |
| Crook | 407,440 | 3.1 |
| Deschutes | 399,610 | 3.1 |
| Gilliam | 10,600 | .1 |
| Grant | 141,280 | 1.1 |
| Harney | 3,894,351 | 29.9 |
| Jefferson | 20,400 | .2 |
| Klamath | 239,666 | 1.9 |
| Lake | 2,281,560 | 17.5 |
| Malheur | 4,270,487 | 32.8 |
| Morrow | 4,360 | .0 |
| Sherman | 9,320 | .1 |
| Umatilla | 11,933 | .1 |
| Union | 1,720 | .0 |
| Wallowa | 7,560 | .1 |
| Wasco | 11,200 | .1 |
| Wheeler | 84,240 | .6 |
| TOTAL EASTERN OREGON | 12,061,727 | 92.7 |
| TOTAL FOR STATE | 13,012,158 | 100% |

Table 3). This large area of land, over one-fifth of the entire area of the state, has been and still is a serious land problem area.

It is generally conceded by those familiar with the situation that since the early 1900's much of the homesteaded land proved up in Oregon has been submarginal for the use to which it was put or in the size of units owned and has not been capable of returning the homesteader a living. As a result, a heavy abandonment has occurred. In eastern Oregon in particular this abandonment has been very heavy but a great many such abandoned homesteads can also be found in western Oregon. Moreover, submarginal homesteads have contributed heavily to the tax title holdings of counties and to the foreclosed holdings of lending agencies.

Many of the past difficulties with this area could probably have been avoided if the area open to individual homesteading had been graduated to the productiveness of the land. If an area is suited only to grazing and if twenty to thirty acres of range land are required to carry a steer, as is the case on much of the domain open to homestead, obviously each homesteader must be allowed considerable land if he is to be self-sustaining.

The recent Taylor Grazing Act and the subsequent order withdrawing public domain lands from entry pending their classification is a great forward step in the solution of the land problem so long associated with indiscriminate homesteading. It is hoped that this action will lead to a sound solution of the public domain problem. If satisfactory policies are evolved for handling the public domain Oregon will be freed of one of her chief land problems. Moreover, such policies may point the way to a solution of the state grant land problem and county land problem which will be discussed later.

Aside from the unreserved and unallotted public domain, most of the remaining federal lands in Oregon have been dedicated to rather specific

uses which appear consistent with public interest. The possible exception is 1,175,000 acres of revested grant land now classified as timber land that may be turned back into the unreserved public domain when the timber is removed. It would be unfortunate if this should occur as these lands are scattered and but little of this area is likely to prove suitable for private ownership and particularly for farming.

State Lands.

The state of Oregon owns slightly less than 1,000,000 acres of land. Of this, about 300,000 acres are under organized management (farms, parks, and state forests), and 700,000 acres (state grant land) are not under organized management (see Table 4).

The residue of the school grant lands which have dwindled from the original grant of 4,353,534 acres to a present holding of 698,529 acres are the only state lands that constitute a serious land problem. These lands are chiefly low grade grazing lands located in eastern Oregon (see Table 4), and are administered by the State Land Board. They are not under organized management and very little revenue is obtained from them. While some of these lands may eventually be sold to neighboring farmers or stockmen, it is likely that the bulk of this area will not be devoted to the most beneficial use in the near future unless a change in policy occurs. These lands are non-contiguous as the original grant was for the sixteenth and thirty-sixth sections of each township. At the present, organized management leading to a more beneficial use of these lands appears to be almost impossible unless land exchanges can be affected that will block up usable areas, or unless they can be pooled with other public lands in grazing districts. It is believed that the state would be justified in working out some plan of organized management that would make these lands

TABLE 4. DISTRIBUTION OF STATE LAND BY COUNTIES

| County | Farm land administered by State Land Board (acres) | School grant land administered by State Land Board (acres) | Land in farms administered by Veterans' State Aid Commission (acres) | State Parks (acres) | State Forest (acres) | TOTAL State Land (acres) |
|---|---|---|---|---|---|---|
| Benton | 620 | 243 | 511 | - | 2,300 | 3,674 |
| Clackamas | 136 | 89 | 565 | 120 | - | 910 |
| Clatsop | 147 | 1 | 114 | 1,749 | - | 2,011 |
| Columbia | 1,144 | - | 806 | 2 | 2,400 | 4,352 |
| Coos | 1,864 | 983 | 1,031 | 144 | 41,787 | 45,809 |
| Curry | 240 | 1,539 | 883 | 1,969 | - | 4,631 |
| Douglas | 125 | 3,471 | 556 | 618 | 29,339 | 34,109 |
| Hood River | 1,423 | 600 | 434 | 558 | - | 3,015 |
| Jackson | 2,303 | 2,462 | 690 | 406 | 640 | 6,501 |
| Josephine | 648 | 4,745 | 243 | - | - | 5,636 |
| Lane | 1,737 | 1,122 | 489 | 928 | - | 4,276 |
| Lincoln | 6,259 | 444 | 1,258 | 89 | - | 8,050 |
| Linn | - | 8 | 403 | - | - | 411 |
| Marion | 188 | - | 442 | 1,030 | - | 1,660 |
| Multnomah | - | 8 | 73 | 194 | - | 275 |
| Polk | 309 | 4 | 311 | - 16 | - | 640 |
| Tillamook | 604 | 160 | 680 | 166 | - | 1,610 |
| Washington | 51 | - | 215 | - | - | 266 |
| Yamhill | 210 | 99 | 337 | 26 | - | 672 |
| TOTAL WESTERN OREGON | 18,008 | 15,978 | 10,041 | 8,015 | 76,466 | 128,508 |
| Baker | 9,671 | 11,640 | 6,872 | 209 | | 28,392 |
| Crook | 10,666 | 20,800 | 1,449 | 32 | | 32,947 |
| Deschutes | 13,603 | 13,307 | 2,569 | 162 | | 29,641 |
| Gilliam | 4,467 | 2,956 | 3,561 | 1 | | 10,985 |
| Grant | 3,950 | 8,360 | 2,020 | 1,604 | | 15,934 |
| Harney | 24,029 | 204,792 | 3,500 | - | | 232,321 |
| Jefferson | 3,019 | 2,264 | 2,702 | 103 | | 8,088 |
| Klamath | 4,937 | 11,023 | 1,075 | 80 | | 17,115 |
| Lake | 7,890 | 125,843 | 669 | 113 | | 134,515 |
| Malheur | 9,080 | 267,345 | 7,654 | - | | 284,079 |
| Morrow | 680 | 792 | 986 | - | | 2,458 |
| Sherman | 1,634 | 1,358 | 400 | - | | 3,392 |
| Umatilla | 2,204 | 2,361 | 648 | 2,094 | | 7,307 |
| Union | 1,529 | 1,727 | 3,002 | 486 | | 6,744 |
| Wallowa | 14,686 | 3,372 | 6,019 | 189 | | 24,266 |
| Wasco | 6,883 | 2,294 | 7,352 | 268 | | 16,797 |
| Wheeler | 7,089 | 2,317 | 3,985 | 180 | | 13,571 |
| TOTAL EASTERN OREGON | 126,017 | 682,551 | 54,463 | 5,521 | - | 868,552 |
| TOTAL FOR STATE | 144,025 | 698,529 | 64,504 | 13,536 | 76,466 | 997,060 |

income producing.

The State Land Board and the State Veterans' Aid Commission administer about 208,000 acres of foreclosed farm land. Many of these farms apparently were appraised above their productive value. Both of these agencies are continually selling and foreclosing as are other lending agencies and doubtless will administer a greater or lesser acreage as long as they continue in existence.

The State Park System administered by the Highway Department contains 13,536 acres. It is believed and hoped that these holdings will expand in the future.

State forest lands consist chiefly of the Eliot State Forest in Coos and Douglas counties. Forest areas in Benton, Columbia, and Jackson counties although listed as state forest are administered by the Oregon State College school of forestry.

County and Municipal Lands.

County owned lands in Oregon consist almost exclusively of lands taken over for taxes which were not salable for the amount of taxes delinquent against them. The exact acreage of these lands is not now known, but studies by the Pacific Northwest Forest Experiment Station indicate that western Oregon counties (see Table 5) contain about 420,000 acres of these lands. It is estimated that an additional 280,000 acres are in eastern Oregon counties.

In western Oregon a heavy proportion of these lands are cut-over timber lands and abandoned homesteads. In eastern Oregon they are chiefly low grade dry farm and range lands much of which were taken up as homesteads and became delinquent when the homesteader or his successor starved out.

These county lands constitute a very serious land problem as they are continually being placed on the market in order to get them back into private ownership and back onto the tax rolls. Generally they are of such low productive capacity that in a few years they are again county owned and so con-

TABLE 5. COUNTY OWNED LANDS IN OREGON

| County | Acreage |
|---|---|
| Benton | 5,226 |
| Clackamas | - |
| Clatsop | 38,136 |
| Columbia | 29,018 |
| Coos | 17,327 |
| Curry | 12,622 |
| Douglas | 42,256 |
| Hood River | 8,163 |
| Jackson | 43,797 |
| Josephine | 50,783 |
| Lane | 25,572 |
| Lincoln | 49,522 |
| Linn | 3,301 |
| Marion | 4,820 |
| Multnomah | 1,245 |
| Polk | 1,340 |
| Tillamook | 75,537 |
| Washington | 8,765 |
| Yamhill | 2,435 |
| Total Western Oregon | 419,865 |
| Total Eastern Oregon | 280,135 |
| TOTAL FOR STATE | 700,000 |

tinue the cycle. In the meantime, the buyers of these lands frequently are objects of private or governmental charity.

Practically all tax delinquent lands of any value are purchased by bidders whenever they go up for sale. Hence, only the lowest valued lands go into county ownership. It is believed that practically all county owned lands are of such low value that individuals cannot afford to own them and pay the taxes assessed against them. Under such circumstances the need for organized handling of such lands is clearly indicated.

Municipal lands do not include privately owned land in cities but include watersheds, airports, city parks, and other areas owned by municipalities. Practically all are under organized management which is designed to provide the services for which they were acquired.

## MAJOR LAND USES

The major uses of the land area of Oregon are shown in Exhibit 2 and Table 6. Perhaps the outstanding thing shown by both the exhibit and the table is the small amount of the state area that is used as arable land. With 48.7 per cent of the state area primarily forest land and another 41.5 per cent primarily grazing land it is quite evident that any program of proper land use must give a great deal of consideration to grazing and forestry problems.

At the present time data are not available to indicate the best use for the major share of the land area of Oregon. It is generally conceded that agricultural crops, grazing and timber growing in the order named represent the range from the most profitable to the least profitable use of land. In other words, if land will not grow crops profitably, try grass; if grass is unprofitable, grow trees. While in general this is true, numerous exceptions are found.

EXHIBIT NO.2

# MAJOR LAND USES

DEPARTMENT OF THE INTERIOR
U. S. GEOLOGICAL SURVEY

## STATE OF OREGON

Scale statute
0 10 20 30 40 Miles
0 10 20 30 40 50 Kilometers

A. F. Hassan, Cartographer
Compiled in 1914, Revised in 1923

LEGEND

- CROP AND FRUIT LAND IN HUMID AREA.
- FOREST LAND.
- IRRIGATED LAND.
- OPEN RANGE LAND.
- DRY FARMED LAND.

O = 1000 Acres

WASHINGTON

OREGON

CALIFORNIA

NEVADA

IDAHO

TABLE 6. MAJOR LAND USES IN OREGON

| Use and type of land | Acres | Percentage of total acreage |
|---|---|---|
| Forested Areas* | | % |
| National Forests | 13,416,344 | 21.9 |
| Timber lands not in farms owned by individuals and/or corporations | 8,675,940 | 14.2 |
| Woodland on farms | 3,122,215 | 5.1 |
| Reserved and unreserved public domain and revested grant lands | 2,829,651 | 4.6 |
| Unallotted Indian lands | 1,125,000 | 1.8 |
| County tax lands | 400,000 | .7 |
| National Parks and monuments | 160,800 | .3 |
| State school grant land | 15,978 | - |
| State forest | 76,466 | .1 |
| Total Forest Land | 29,822,394 | 48.7 |
| Non-tillable pasture and range lands | | |
| Reserved and unreserved public domain | 12,061,727 | 19.7 |
| Range and non-tillable pasture lands on farms | 7,942,543 | 13.0 |
| Privately owned non-forest land not in farms | 4,100,000 | 6.7 |
| State school grant land | 682,551 | 1.1 |
| Unallotted Indian lands | 370,680 | .6 |
| County tax lands | 250,000 | .4 |
| Total Range Land | 25,407,501 | 41.5 |
| Arable Land | | |
| Irrigated land | 898,713 | 1.5 |
| Dry farmed land | 2,427,202 | 4.0 |
| Other arable land (crop and plowable pasture in western Oregon) | 1,663,407 | 2.7 |
| Total Arable Land | 4,989,322 | 8.2 |
| Other Land | | |
| Waste land in farms | 494,598 | .8 |
| Privately owned non-forest land not in farms which is largely waste | 321,930 | .5 |
| Miscellaneous federal lands | 39,200 | .1 |
| Municipal land | 50,000 | .1 |
| County tax lands largely waste | 50,000 | .1 |
| State parks | 13,536 | - |
| Total Other Land | 969,264 | 1.6 |
| TOTAL FOR STATE | 61,188,481 | 100.0% |

*Forested areas contain cut-over, and burned-over areas, young growth, mature timber, and limited areas of open land interspersed in the timbered areas.

Many of Oregon's land problems can be attributed directly to the fact that the present use of land has been developed by a cut and try method. Unfortunately many of the experimenters exhausted their resources before they found a successful combination.

It is virtually impossible to predict the best permanent use for every piece of Oregon land. As economic conditions change there is a continual shifting of uses on certain borderline areas. When prices are high stockmen may find it profitable to slash, burn and seed forest land, or farmers may plow up a rather poor piece of pasture land. With lower prices this process may be reversed. However, if most of this adjustment can be confined to land in farms and expansion to the vast areas not in farms can be curtailed, adjustments to lower prices later will be far less serious. Sudden expansion into undeveloped areas as a result of a temporary lift of prices has caused a great deal of trouble in the past and will repeat itself if given a chance.

For years Oregon, in common with other Pacific Coast states, has been subject to sporadic attempts by various groups to secure more settlers for Oregon lands. There is no doubt that most of the backers of these moves were entirely sincere in their actions. Moreover, many fine citizens were obtained in this manner. It should be pointed out, however, that most of these groups were moving blindly for even today facts are not available to indicate how much arable land is available in Oregon. It is entirely possible that forestry is the best land use for the 29,822,394 acres shown as forest land in Table 6, and that grazing is the best use for the 25,407,501 acres listed as grazing land. Until considerable research covering such items as soil, topography, climate, etc., is carried on, one guess is about as good as another. Obviously whether these vast areas are best suited to their present extensive use or whether they may be used more intensively has considerable bearing on the number of families that Oregon's land will support.

## LAND PROBLEM AREAS IN OREGON

It is believed that there are six major land problem areas in Oregon at the present time. One of these is located within the area of the state designated as forest lands (see Exhibit 3); one is located on lands, the future use of which is probably recreational; and four are on lands which will likely remain in some form of agricultural use for many years. The problem land areas shown in Exhibit 3 include only sections where an important land use problem exists. Therefore, the non-problem areas, as designated on the map, do not represent areas that are absolutely problem free, but do represent areas where problems affecting the public interest are not of major importance.

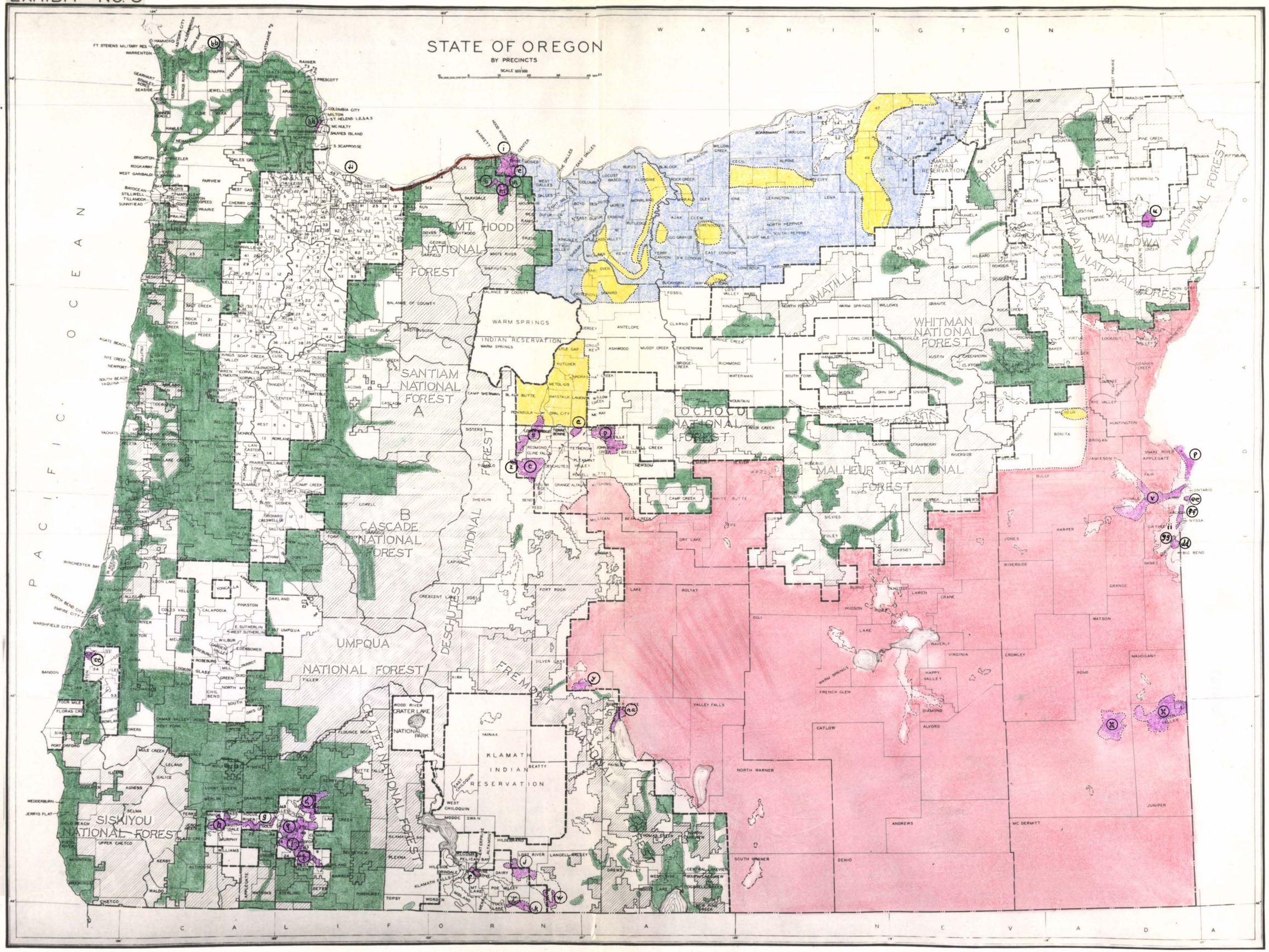
In the discussion of these areas, generalizations rather than specific facts are used to indicate the nature of most of the problems presented, for at the present time data are not available to justify detailed discussion. These generalizations, however, are based upon the combined opinions of well informed people such as county agents, staff members of the Oregon State Agricultural College, and forestry officials, and it is believed that the general picture of the situation is correct. It should be understood, however, that as more facts become available, minor adjustments in the areas mapped will no doubt be necessary.

### Problem Areas on Forest Lands
(Designated by green color in Exhibit 3)

The various forestry problems which pertain to the forest lands will not be discussed in this report as they are covered in various reports that have been prepared by the United States Forest Service, and particularly by the report submitted by this agency during the past September. Within the forest areas there are, however, about 925,000 acres of lands which are now being used to a greater or lesser degree for agricultural production. Of these, about 710,000 acres are in the humid area west of the sumit of the Cascade Mountains (western Oregon).

EXHIBIT NO. 3

# PROBLEM AREAS



Three types of problems are found on the agricultural lands in the forest areas. These are (a) farms consisting almost entirely of non-agricultural land; (b) scattered isolated farms where the school and road upkeep is out of line with any possible contribution of these farms to the tax income of the county and where the fire hazard is great; and (c) part-time farms that are stranded away from possible part-time employment chiefly due to liquidation of the timber resources. In the Preliminary Land Use Report submitted on September 15th the above areas were designated as 1, 2, and 3E respectively. Due to the humid climate, the forest areas in western Oregon are more thickly settled and contain many more problem areas of the types indicated than the forest areas of eastern Oregon. In western Oregon it is not uncommon to find all three problems within a single precinct as well as some tracts where there is no problem.

Without a very detailed investigation it would be impossible to separate and map the specific areas where each problem exists. While accurate statistical material is not available, it is estimated that there are approximately 13,000 farms within the area designated as forest land. Moreover, it is known that of these a large proportion can be classified as belonging to one of the problem types indicated.

Forest Areas West of the Cascade Mountains (western Oregon)*

Agricultural problem areas in the forest areas of western Oregon are found chiefly in (1) cut-over and burned-over areas, mountain lands commonly known as stump ranch areas, and (2) shoe string valleys. Farms of the (a) type are found chiefly in the stump ranch areas while the (b) and (c) type farms are found both in stump ranch areas and shoe string valleys.

*It is estimated that there are 1,500 type (a) farms and that these farms contain about 225,000 acres of which 15,000 acres are crop land. It is

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* In this report Hood River county has been treated as a western Oregon county as its land problems have more in common with western Oregon than eastern Oregon.

estimated that at present the land and buildings on these farms are valued at $1,500,000. Type (b) farms probably do not exceed 1,000 and probably contain about 150,000 acres of land of which 10 per cent or 15,000 acres is crop land. These 1,000 farms are individually slightly more valuable than the type (a) farms so it is estimated that they too are valued at $1,500,000. Type (c) farms probably number about 3,000.

Stump Ranch Areas. Many families have located on the logged-over or burned-over mountain lands. Some of these farms have been homesteaded, some have been purchased from logging companies, and some have been acquired from individual owners. Generally, these farms are isolated and the occupants live under very primitive conditions. Many are accessible only by trail, while others may be on dirt roads several miles from a gravelled road.

There appear to be three general reasons behind the acquisition of a large portion of the stump ranches now in existence. They may be the residue of settlement left behind logging operations; they may have been acauired by individuals that prefer to live in isolated, sparsely settled sections; or they may have been acquired by land hungry people with limited cash assets who thought they could build a home from the raw wilderness as their pioneer forefathers before them had done. Present day pioneers should remember, however, that their forefathers had the choice of both the good and poor land while today but little choice remains, especially in rough, mountainous country.

There is ample evidence that many have acquired such locations without full knowledge of the hardships associated with living under such primitive conditions. As a result, abandonment is heavy but even so there are many others who are willing to take a chance (see Photo A). Occasionally these stump ranches are on good agricultural soil, but

Photo A

ABANDONMENT IS FREQUENT IN STUMP RANCH AREAS

A completely abandoned homestead on a stump ranch in Western Oregon. The owner left ten years ago and never came back. Abandoned homesteads such as this are often sold sight-unseen to people that hope to become self-supporting by betting back on the land.

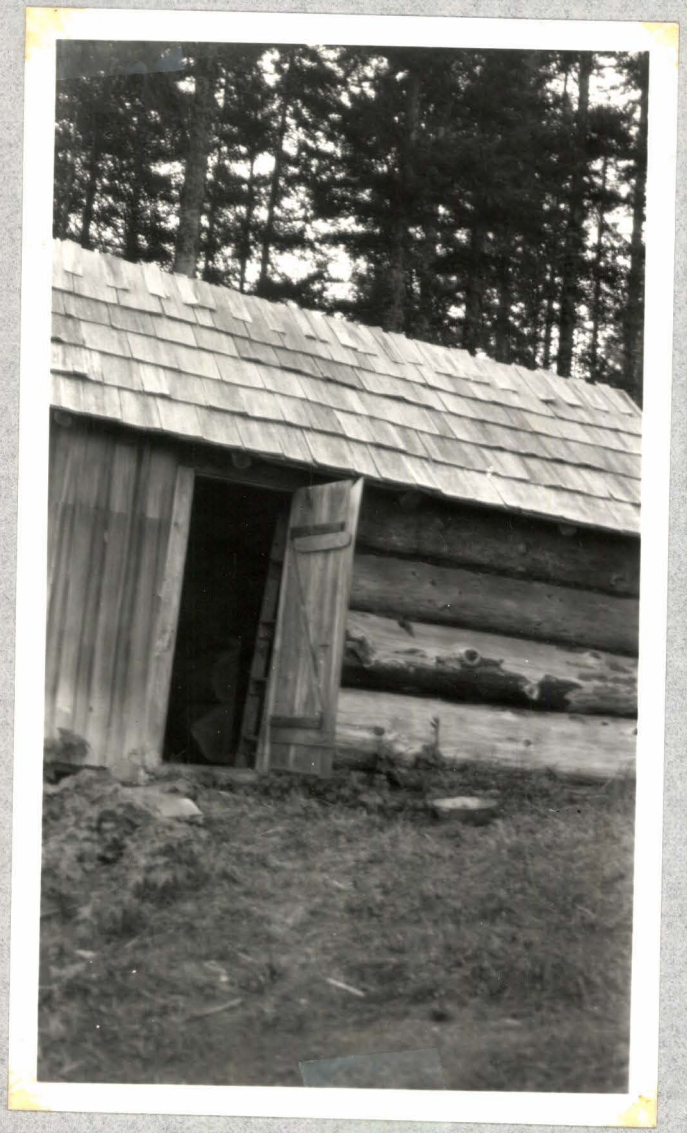

Photo B

TREES HAVE HAD LITTLE CHANCE TO GROW ON THIS LAND

This area has been burned over repeatedly for the past 65 years. Much of this burning was the result of runaway fires set by homesteaders to burn brush and fern so that grass would grow. As yet there is but little grass and a great deal of brush and fern remain. This soil is very stony and is unfit for agriculture. Two abandoned homesteads lay just out of the picture on the left.

more frequently the soil is not productive and is not worth the effort of clearing it (see Photo B). As a general rule, tilled areas are very small due to the lack of land that could be cultivated even if clear and due to the slow, hard labor involved in clearing. The production of agricultural products consists largely of garden produce for home consumption. Logging camp work, road and trail work, trapping, and the sale of cascara bark are the chief sources of cash income.

There is little that can be said in favor of the average mountain stump ranch and much that can be said against them. At the best, they offer a place to exist for a limited number of people. Without steady supplementary employment, existence is usually meager for most of them consist almost entirely of non-agricultural land. Some, it is true, prefer to live in the wilderness at a very low standard rather than live in a more settled community, but there is considerable question whether the public can afford to have people live in such locations. For example, isolated stump ranches in a timbered county are a continual fire hazard. Stumps and brush cannot be cleared without fire, and even with the most careful, a percentage of the fires usually get out of control. Frequently one such fire will destroy more value in timber growth than several such ranches will ever be worth. Moreover, in many instances the demands for schools and roads for these places far exceeds any possible ability to pay and in effect such places are subsidized. Often the adjoining timber owner pays the bill through school and road tax levies.

Considering all points, it is believed that the average stump ranch is undesirable both from a social and uneconomic viewpoint, and it is further believed that both the occupants and the public would benefit by turning many of these ranches back to the growing of forests and moving the population elsewhere. (See Photos C and D)

Photo C

TREES GROW RAPIDLY IF PROTECTED FROM FIRE

A few miles down the road from "Scene B". This area is in the national forest and is protected from fire. The trees are about forty to fifty years old and are growing rapidly. Such land will produce about 1,000 board feet of lumber per acre per year.

Photo D

TIDELANDS

Lands such as these are very productive and can be reclaimed at a relatively low expense per acre. This area is located about ten miles west of the area shown in pictures A, B, C, and D. Several stump ranchers could be placed on such a location as this.

If people in limited financial circumstances feel that unimproved stump land is the best land they can afford, there are ample acreages of fairly good soil now in stumps and brush which is adjacent to the better agricultural lands. These areas should prove much more satisfactory than many of the isolated tracts they now occupy. Moreover, in such locations, schools and roads are available and supplemental employment is more likely to be available.

Shoe String Valleys. Leading back into the mountains are many valleys, some quite small and some fairly large. Frequently the mountainous land rises quite sharply from the valley floor, and the slopes of these mountains are too steep for agricultural purposes even if the soil were productive. The valleys on the other hand are generally quite productive and are used for agricultural production.

These valleys are often several miles in length and in many instances are very narrow for the major portion of their length. Moreover, farms do not usually follow the valley, but consist of square tracts (sections and divisions thereof) which generally include a considerable area of non-productive hill land.

The shortage of valley land which is usually the only available crop land results in two conditions. If considerable supplementary work has been or is available, a valley of part-time farmers is usually found. On the other hand, if such work has not been available, settlement is sparse because only a few families can remain in such a valley and remain self-supporting on the limited crop acreage available.

In the former instance the land problem is to maintain the supplemental employment for without such employment many will have to move out or receive assistance of some sort. Many of these farmers work or have worked in nearby timber camps or sawmills. Unfortunately, under present

logging practice, timber stands are usually liquidated within a few years after cutting once starts. Already many such communities have been stranded and many more are on the verge of being stranded (see Photo E).

Where supplemental employment has not caused intensive settling up of a shoe string valley a problem often met is excessive costs for schools and roads. Many instances are noted where ten or fifteen miles of county road and one or more schools are provided for the benefit of a very few families. In such cases the cost to the tax payers for these public needs is often greater than the value of production from the area. In one such location recently investigated, the cost of providing a regular grade school education had reached a total annual cost of $250 per pupil, whereas the average cost for the county as a whole was about $80 per pupil. Moreover, the roads up these valleys must be gravelled if they are to be of use during the rainy winter and spring months and this type of road construction is rather expensive.

It would appear from the foregoing discussion that the shoe string valley was indeed a bad situation. On one hand, unless it is intensively settled, school and road costs are likely to be excessively high, and on the other hand, if it is intensively settled, the crop land per farm is so small in area that outside employment is necessary. Nevertheless, this is the situation and unless supplemental employment can be kept fairly constant through a sustained forest yield program or by other means many shoe string valleys probably should be abandoned for farming purposes and turned back to growing forest.

Forest Areas East of the Cascade Mountains (Eastern Oregon)

East of the Cascades, the climate is semi-arid and within the area designated as primarily forest land (green area) irrigation is generally essential for crop production. Because of this and the limited areas of open land, settlement is rather sparse and land use problems that pertain to agri-

Photo E

A PART-TIME FARM VERY NEAR THE ABANDONMENT STAGE IN TILLAMOOK COUNTY

This farm contains 120 acres but is mostly mountainous. Road work and peeling Cascara bark are the chief sources of cash income.

culture are not so numerous as in western Oregon.

In this area, problem farms generally consist of (a) ranches without adequate irrigation water or crop land or both, and (b) small isolated irrigated valleys of low productive capacity where it is difficult for the settlers to maintain adequate social and living conditions.

Ranches in this region without adequate crop land or water are perpetually short of winter feed and in a few years the operator usually starves out. While many such places have been abandoned outright, others have been sold to other misguided but hopeful families, and cumulatively a great deal of loss has occurred. Most of the places of this character a pear to be better suited to public than private ownership, although some might well be absorbed by large ranch outfits if they happen to be located adjacent to such holdings.

Isolated irrigated valleys in the timber belt are difficult to classify. In some instances, no doubt, settlement of these valleys was necessary to a proper utilization of adjacent range. However, in other instances they are not particularly well located with respect to early and late range, and there are indications that a more central location might be better for both the ranchers and the public generally.

There are not enough data available to even justify an estimate of the number of type (b) ranches in the forested areas of eastern Oregon. It is estimated, however, that there are about 250 type (a) ranches in this area. It is also estimated that these ranches contain about 80,000 acres of which not over 5,000 acres are irrigated land and that the owners would value these ranches at about $375,000.

## Recreational Land Problem Areas
(Designated by brown color in Exhibit 3)

There is a distinct recreational land problem area within the Columbia Gorge. On the Oregon side of the river this area includes all of the land within the gorge from the vicinity of Corbett in Multnomah county to the town

of Hood River in Hood River county.

Data are not available to show the exact size of the area involved as the boundaries do not follow precinct lines. It is estimated, however, that this area contains about 75 farms which include 6,000 acres of land, and which are valued at approximately $766,000. Of the land in farms, about 1,400 acres are in crops; 2,500 acres are in pasture; and the remaining farm acreage consists of timbered lands, sloughs, rock cliffs, willow thickets, and gravel bars which are not suitable for agricultural purposes.

The type of farming followed in this area is chiefly general farming with some fruit growing and early vegetables on the better soils and in the more protected locations. Most of these farms are self-sustaining farm units, but the area is not a first class agricultural area due to the very spotted soil conditions and due to the small area of agricultural land in one body.

The scenic attractions of this area together with its location near Portland give a value to these lands for recreational purposes and summer homesites that far exceeds their agricultural value.

The recreation committee of the Oregon Planning Council is now conducting a study to determine how the Columbia River Gorge may be protected so that the natural beauties and scenic value may be preserved for future generations. It is believed that some government agency should adopt this or some other plan and in the near future should take active steps to convert this area into a recreational area.

Recreation opportunities is one of the major assets of Oregon. However, no attempt will be made here to point out the needs of Oregon as special committees of the Oregon Planning Council are giving these matters study. It should be mentioned, however, that recreation frequently can be integrated with other land uses in such a manner that the land does double duty. Few assets can be developed as cheaply.

## Problem Areas on Agricultural Lands

In that portion of the state designated as non-forest land (Exhibit 3) four major problem areas are indicated. These are (1) submarginal dry farm areas (yellow areas); (2) erosion areas (blue areas); (3) depleted range lands (red areas); (4) overcapitalized irrigation and drainage districts (purple areas).

### Submarginal Dry Farms (yellow areas in Exhibit 3)

The chief areas of lands of this character at present are in the wheat areas of Jefferson, Wasco, Sherman, and Gilliam counties, although small scattered areas occur throughout nearly all eastern Oregon counties. According to the census, there are approximately 543 farms in these areas. These farms contain 907,695 acres of land of which 361,877 acres are crop land; 517,890 acres are pasture land; and 27,928 acres are classed as other land (see Table 7). In 1930 the land and buildings on these farms were valued at $15,672,403, but it is believed that much lower values prevail at present as census values appear out of line with the production of these areas.

The unproductiveness of these areas appears due chiefly to lack of sufficient rainfall. Wind and water erosion and shallow soils are contributing factors but have not been the major causes of unproductiveness.

Much of this land was homesteaded. Dry farming was the only possible hope of obtaining production from most of this land, so vast areas were cleared of sage brush and put under plow. After a few years many settlers gave up and abandonment was very heavy. While some areas have been almost completely abandoned, others which had better soil and more moisture have been abandoned at a less rapid rate. Abandonment is still going on and during recent years, due to low prices and short crops, has been increasing (see Photo F).

Photo F

AN ABANDONED DRY LAND FARM

The owner of this Jefferson county farm decided to give up and move elsewhere. Many such houses are found in this county.

TABLE 7. PRECINCT DATA ON SUBMARGINAL DRY FARMS

| County & Precinct | No. of farms | Acres in farms | Acres of cropland | Acres of pasture land | Value of farm land & buildings |
|---|---|---|---|---|---|
| Umatilla Co. | | | | | |
| 1/3 - 25 | 15 | 12,099 | 10,136 | 1,935 | 939,900 |
| 1/2 - 26 | 12 | 27,463 | 15,748 | 1,056 | 1,128,528 |
| 1/2 - 46 | 10 | 12,994 | 12,652 | 63 | 732,730 |
| 3/4 - 47 | 24 | 42,556 | 26,446 | 13,803 | 1,219,912 |
| 1/2 - 48 | 25 | 49,328 | 24,072 | 23,762 | 961,192 |
| 3/4 - 49 | 12 | 19,881 | 7,300 | 12,067 | 319,875 |
| 1/4 - 51 | 17 | 6,154 | 660 | 5,423 | 134,415 |
| 1/4 - 57 | 5 | 15,360 | 4,729 | 10,399 | 173,176 |
| 3/4 - 61 | 9 | 62,594 | 4,688 | 57,760 | 607,470 |
| 1/4 - 60 | 10 | 20,026 | 5,434 | 13,610 | 277,330 |
| 1/2 - 62 | 6 | 16,101 | 1,048 | 14,812 | 137,445 |
| Total | 145 | 284,556 | 112,913 | 154,690 | 6,631,973 |
| Morrow Co. | | | | | |
| 1/4 - Alpine | 9 | 23,665 | 6,333 | 17,197 | 181,380 |
| 3/4 - Cicil | 22 | 39,136 | 12,127 | 26,596 | 424,200 |
| 1/4 - Ione | 23 | 28,422 | 21,166 | 6,244 | 547,592 |
| 1/4 - Lexington | 14 | 16,984 | 12,007 | 4,717 | 449,565 |
| 1/4 - Pine City | 5 | 49,445 | 2,776 | 46,612 | 318,022 |
| Total | 73 | 157,652 | 54,409 | 101,366 | 1,920,759 |
| Sherman Co. | | | | | |
| 1/4 - Kent | 14 | 20,632 | 10,510 | 9,862 | 440,610 |
| 1/4 - Klondike | 11 | 11,749 | 8,781 | 2,798 | 468,028 |
| 1/2 - Michigan | 18 | 29,974 | 13,010 | 16,724 | 543,865 |
| 1/4 - Moukland | 15 | 17,479 | 12,002 | 5,395 | 595,120 |
| 1/4 - Rutledge | 10 | 12,658 | 7,771 | 4,609 | 303,510 |
| Total | 68 | 92,492 | 52,074 | 39,388 | 2,351,133 |
| Wasco Co. | | | | | |
| 1/2 - BakeOven | 5 | 17,248 | 4,375 | 12,596 | 155,726 |
| 1/4 - Criterion | 3 | 7,327 | 678 | 6,607 | 51,256 |
| 1/2 - Shaniko | 11 | 56,074 | 4,662 | 51,154 | 367,435 |
| Total | 19 | 80,649 | 9,715 | 70,357 | 574,417 |
| Jefferson Co. | | | | | |
| Haystack | 31 | 25,627 | 18,655 | 6,633 | 467,120 |
| Kutcher | 37 | 36,924 | 22,546 | 13,478 | 522,270 |
| La Monta | 18 | 26,875 | 12,500 | 13,610 | 298,480 |
| Lyle Gap | 38 | 31,461 | 16,650 | 13,761 | 433,881 |

TABLE 7. (Continued)

| County & * precinct | No. of farms | Acres in farms | Acres of cropland | Acres of pasture land | Value of farm land & buildings |
|---|---|---|---|---|---|
| Black Butte | 23 | 16,587 | 3,180 | 12,597 | 160,450 |
| Opal City | 14 | 17,094 | 8,027 | 7,208 | 212,400 |
| Metolius | 27 | 19,871 | 11,160 | 8,120 | 263,715 |
| Peninsula | 6 | 11,320 | 1,089 | 10,116 | 122,000 |
| Total | 194 | 185,759 | 93,807 | 85,523 | 2,480,316 |
| Gilliam Co. | | | | | |
| 1/4 E.Condon | 10 | 19,338 | 6,781 | 12,316 | 354,416 |
| 1/4 Ferry Canyon | 3 | 7,789 | 3,379 | 4,388 | 149,115 |
| 3/4 Gwendolen | 10 | 33,711 | 8,788 | 24,923 | 274,504 |
| 1/4 Mayville | 6 | 9,598 | 4,893 | 4,551 | 223,720 |
| 1/4 Mikkalo | 4 | 9,518 | 5,676 | 3,718 | 198,398 |
| 1/2 N. W.Condon | 4 | 14,031 | 6,070 | 7,516 | 324,017 |
| 1/2 Trail Fork | 3 | 6,855 | 1,446 | 5,382 | 120,685 |
| 1/4 Rock Creek | 4 | 5,747 | 1,926 | 3,772 | 68,950 |
| Total | 44 | 106,587 | 38,959 | 66,566 | 1,713,805 |
| GRAND TOTAL | 543 | 907,695 | 361,877 | 517,890 | 15,672,403 |

The dry farm land in Jefferson county lying in the precincts of Lyle Gap, Kutcher, Metolius, Haystack, Opal City, La Monta, Peninsula, and Black Butte is fairly typical of submarginal dry farm areas in eastern Oregon, although it probably is slightly better than average submarginal land in this area. In 1930 this region contained 194 farms of which about 140 were wheat farms. For the four-year period, 1929 - 1932, which is covered by the A.A.A. wheat contracts, this region produced on the average 9.7 bushels of wheat per acre. Due to dry weather, the 1933 crop made but four bushels per acre and in 1934 the crop was a complete failure.

For the past 25 years the average rainfall in these Jefferson county precincts has been 8.06 inches, and for six out of the 25 years the precipitation has been under 6.25 inches.

The low wheat yields in Jefferson county have caused serious financial conditions to arise. These are characterized by (a) heavy tax delinquency, (b) numerous delinquent mortgages, (c) heavy rural relief load, and (d) rapid farm abandonment and loss of population.

Of the 369 separate tracts of contract wheat land in the county, which includes about 97 per cent of all the wheat land, there are 266 tracts or 72 per cent that at present (August 1934) are tax delinquent. Of these 266 pieces of delinquent land, 73 or somewhat over a fourth are delinquent for six years or more while the other three-fourths are delinquent from two to five years.

Practically all of the farm mortgage lending in this area has been by the Federal Land Bank. No new loans have been made since about 1924 but prior to that date about 187 loans were made. Of these, 21 have been foreclosed and sold; 22 have been foreclosed and are now owned by the Bank; 4 are under foreclosure; and 140 are still current, although most of these are delinquent and subject to foreclosure.

Jefferson county wheat farmers will receive about $125,000 or around

$400 per farm per year under the wheat allotment contracts. Most of this has been paid to farmers in the precincts previously named. However, even with the wheat payments, it has been necessary to provide heavily of other forms of relief. Of the 140 wheat farmers in these precincts, 63, or almost half, were on relief funds in July 1934 and were drawing about $20 per month each.

Farm abandonment has been and is going ahead rapidly in this region. On the other hand, land abandonment has not been so heavy as many of the abandoned farms have been attached to other farms. The larger, more cheaply operated units seem to have fared better than the small homestead units. From 1920 to 1925 farms in Jefferson county decreased 19 per cent and from 1925 to 1930 the decrease was 28 per cent. It is believed that since 1930 the rate of farm abandonment has been fully as rapid as for the previous five-year period. It also appears that land abandonment has been heavier during the last few years. Without the wheat benefit payments and the F.E.R.A. relief funds, it is likely that much heavier abandonment of both farms and land would have occurred in the Jefferson county wheat area during the past two years.

It should be mentioned that much of this area is included in a proposed irrigation district. Many farmers are reluctant to leave while there is even a remote prospect for water. This proposition has been under consideration since 1913 and probably has held down the rate of abandonment.

It is believed that the facts presented for Jefferson county are typical of the situation that prevails in other submarginal dry farm areas in eastern Oregon. The one difference is that Jefferson county farmers still have hopes for irrigation while similar areas in eastern Oregon do not. This hope, however, does not affect the status of this area as a dry land wheat area.

It is believed that all of the submarginal dry farm area indicated in Exhibit 3, except lands subject to irrigation, should be bought up and turned back into range. Probably most of this land should go into public ownership in the form of grazing units, although in some instances private ownership

may be more desirable.

The present occupants of this land are for the most part very intelligent, courageous, hard-working farmers. If given a reasonable chance in a more favorable location, it is believed that most of them would soon rehabilitate themselves.

Erosion Areas (blue area in Exhibit 3)

Data compiled by the U. S. Erosion Control Station at Pullman, Washington, indicates that practically the entire wheat belt of northeast Oregon is menaced by serious water or wind erosion. Practically all of the dry farmed land in Wasco, Sherman, Gilliam, Morrow and Umatilla counties lies within this area. According to the 1930 census, this erosion area contains 1,876 cash grain farms which contain about 1,400,000 acres of crop land and 567,685 acres of pasture land. Of this crop land, approximately one-half is fallowed each year, and it is while the land is fallowed that the more serious erosion occurs.

Of the 1,400,000 acres of crop land that is subject to serious erosion, it is estimated that 10 per cent or about 140,000 acres lie on the steep slopes and erodes so seriously that drastic steps must be taken if erosion is to be controlled. The remainder of the area is on land that ranges from level to undulating. According to G. R. Hyslop, Professor of Farm Crops, Oregon State College, it is possible to obtain fairly good erosion control on some of this land by plowing under all stubble and straw each year. This practice serves to increase the humus in the soil and decreases both wind and water erosion. At present, burning of straw or both straw and stubble is a common practice. It appears doubtful if wheat farmers on this type of land would be interested in rotation or shifting over to a livestock plan for such plans of this character as are practical do not offer as great income returns as wheat growing.

It is believed that erosion control on the 140,000 acres of this area that lie on the steeper slopes will require at least strip cropping with crested

wheat or other grass, and in some instances abandonment of cultivation completely and cropping with this or other grass will no doubt be necessary. At the present price level it is estimated that it will cost about $4.75 per acre to establish a stand of crested wheat grass on this land. Of the 140,000 acres, probably not over half will need to be seeded in order to control the erosion on the entire area.

If a program is initiated to control the erosion on this 140,000 acres, it is estimated that 70,000 acres of land, half of which is in fallow each year, will be eliminated from production. Based on 1930 yields which were about normal, this program would decrease wheat production in these counties about 870,000 bushels. As wheat is practically the only crop grown other crop production would not be affected.

It is believed that practically all of the grass produced on the erosion control plantings could be utilized by the present farm livestock. Heavy grazing could not be permitted or the control features would largely be lost.

To initiate such a program by means of acquiring easements would probably cost about $3.50 per acre, or $215,000 for the entire 70,000 acres. Without this or some similar cash remuneration, it is doubtful if the farmers would generally attempt to carry out such a program to any extent.

Depleted Range Lands (red color on Exhibit 3)

In the counties of Malheur, Harney, Lake, Deschutes, Crook and Baker there are large areas of sparsely settled range lands of the desert type which are badly depleted. There are about 16,000,000 acres included in this area, of which about 11,000,000 acres are still in the public domain. The remainder consists of school land, road land, abandoned homesteads, and privately owned range and irrigated lands. Water is quite scarce and very little of the area except the land adjacent to the water holes is now under fence, although in past years settlers attempted to homestead this area. Due to the lack of summer water and freedom from control by fencing, early grazing, over-grazing,

and other range abuses have been practiced for years. The general rule has been to come first and stay as long as the water holds out. These abusive practices have caused the range to deteriorate rapidly so that it now carries only a fraction of its original capacity. Deterioration is particularly noticeable near the water holes. In areas where lack of water has restricted the grazing, the range is still of good quality which indicates that this area will supply fairly good grazing if given a chance. Recent information indicates that many ranchers in this area are petitioning for administration under the Taylor Act. If this area generally comes under the Taylor Act it is probable that many of the troubles of past years will be eliminated.

Most of the remaining range land in eastern Oregon that lies outside of the national forests is held under private ownership. While much of this is deteriorating somewhat because of unwise handling by the owners, this deterioration does not compare in severity to the deterioration for the area mapped. This privately owned range land has not been designated as a problem area for, although problems do exist, these are individual rather than general in character.

Overcapitalized Irrigation and Drainage Districts (indicated by purple color on Exhibit 3)

Irrigated Lands. According to the 1930 census there are approximately 898,713 acres of irrigated land in the entire state. Much of this area is irrigated by private ditch at very low cost and on these lands no particular financial difficulties are associated with irrigation. There are, however, 47 active organized irrigation districts in the state. Of these, 27 appear to be in rather serious financial difficulties for 23 of these have applied to the R. F. C. for loans; three are negotiating directly with the bondholders for acceptance of refunding bonds; and one is so hopeless, due to a combination of financial difficulties and water shortages that complete abandonment appears likely. The present status of these 27 districts is shown in Tables

8 and 9. The small letter enclosed in parenthesis: (a), (b), etc., which precedes each name may be used as a key to locate these districts on the problem area map (Exhibit 3).

Of the 23 districts that have applied to the R. F. C. for refinancing, districts (a) to (w), 14 have already received commitments and most of these districts have been able to persuade the bondholders to deposit very nearly 100 per cent of the bonds. However, many of these loans have not actually been closed so as yet the financial future of these districts is more or less uncertain.

Of the three districts that are negotiating directly with the bondholders for a scale down of the debt load by trading refunding bonds for the bonds the creditors now hold, it appears that all are likely to be successful, although none has as yet completed these negotiations.

Drainage Lands. At present there are 46 organized drainage districts in the state. These districts drain about 118,000 acres of land and contain about 2,600 farms. Of these districts, eight have applied to the R. F. C. for refinancing. The remainder are presumed to be in fairly good financial circumstances although definite information on each district is not available at this time.

Table 10 shows the general status of the eight drainage districts that appear to be in difficulty. Of these, but three have received a commitment from the R. F. C. as yet and none has reached final settlement.

TABLE 8. GENERAL DATA CONCERNING IRRIGATION DISTRICTS IN FINANCIAL DIFFICULTY

| Key | Name of District | County | Irrigable area (acres) | Area irrigated 1933 | Irrigable area under refinancing plan | Population | Number of farms in district |
|---|---|---|---|---|---|---|---|
| (a) | Crook Co. Improvement District No. 1 | Crook | 2,434 | 2,000 | 2,100 | 75 | 31 |
| (b) | Dee Irrigation District | Hood River | 1,050 | 775 | 775 | 175 | 75 |
| (c) | Deschutes Co. Mun. Imp. District | Deschutes | 14,565 | 6,000 | 6,000 | 300 | 102 |
| (d) | Eagle Point Irrigation District | Jackson | 5,000 | 4,600 | 5,000 | 572 | 173 |
| (e) | East Fork Irrigation District | Hood River | 11,250 | 9,500 | 11,250 | 1,200 | 566 |
| (f) | Enterprise Irrigation District | Klamath | 2,992 | 2,992 | 2,992 | 1,445 | 254 |
| (g) | Gold Hill Irrigation District | Jackson | 1,038 | 1,038 | 1,038 | 250 | 70 |
| (h) | Grants Pass Irrigation District | Josephine | 12,591 | 6,819 | 12,591 | 3,200 | 1,284 |
| (i) | Hood River Irrigation District | Hood River | 4,025 | 2,798 | 4,025 | 675 | 197 |
| (j) | Horsefly Irrigation District | Klamath | 7,344 | 6,000 | 7,100 | 249 | 87 |
| (k) | Malin Irrigation District | Klamath | 3,469 | 2,834 | 3,464 | 181 | 64 |
| (l) | Medford Irrigation District | Jackson | 9,242 | 7,885 | 8,264 | 2,043 | 860 |
| (m) | Middle Fork Irrigation District | Hood River | 7,666 | 4,091 | 7,666 | 1,400 | 300 |
| (n) | Mt. Hood Irrigation District | Hood River | 1,041 | 1,041 | 1,041 | 500 | 55 |
| (o) | Ochoco Irrigation District | Crook | 18,501 | 8,484 | 12,250 | 347 | 144 |
| (p) | Payette Oregon Slope Irrig.District | Malheur | 5,300 | 4,350 | 4,700 | 285 | 107 |
| (q) | Rogue River Valley Irrig.District | Jackson | 4,720 | 4,067 | 4,720 | 736 | 309 |
| (r) | Shasta View Irrigation District | Klamath | 3,466 | 698 | 3,466 | 100 | 39 |
| (s) | Squaw Creek Irrigation District | Deschutes | 7,124 | 4,725 | 6,172 | 202 | 64 |
| (t) | Talent Irrigation District | Jackson | 11,066 | 9,887 | 10,000 | 1,269 | 570 |
| (u) | Wallowa Valley Improv. Dist. No. 1 | Wallowa | 8,965 | 5,380 | 6,200 | 150 | 45 |
| (v) | Warmsprings Irrigation District | Malheur | 13,145, | 12,515 | 12,515 | 677 | 245 |
| (w) | Willow Valley Irrigation District | Klamath | 1,692 | 1,692 | 1,692 | 25 | 13 |
| (x) | Jordan Valley Irrigation District | Malheur | 6,088 | 4,718 | ? | 125 | 63 |
| (y) | Silver Lake Irrigation District | Lake | 7,650 | 1,000 | ? | ? | ? |
| (z) | Snow Creek Irrigation District | Deschutes | 2,000 | 250 | ? | 10 | 4 |
| (aa) | Summer Lake Irrigation District | Lake | 2,500 | 1,000 | ? | 30 | 21 |
| | TOTAL | | 175,924 | 117,139 | 135,021 | 16,211 | 5,742 |

TABLE 9. INDEBTEDNESS OF IRRIGATION DISTRICTS IN FINANCIAL DIFFICULTY

| Key | OUTSTANDING INDEBTEDNESS | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Bonds | Bond int. delinquent and accrued | Cert. of indebtedness due State of Oregon | Int. on certificates of indebted. | Warrants outstanding | Accrued int. on outstanding warr. | Other debt | TOTAL INDEBTEDNESS | Amount of loan applied for | Bonds in default | Amount of loan approved |
| | $ | $ | $ | $ | $ | $ | $ | $ | $ | $ | $ |
| (a) | 193,000 | 108,535 | 31,200 | 11,529 | 18,235 | 7,193 | 1,829 | 371,519 | 50,000 | 32,000 | 35,000 |
| (b) | 69,000 | 2,044 | - | - | 2,126 | - | 304 | 73,474 | 40,000 | 1,000 | |
| (c) | 650,000 | 220,920 | 189,000 | 18,928 | 54,600 | 22,505 | 2,921 | 1,158,874 | 120,000 | 42,000 | |
| (d) | 385,000 | 109,770 | 120,000 | 29,370 | 19,610 | 3,952 | 3,687 | 671,389 | 100,000 | 69,000 | 93,000 |
| (e) | 82,600 | 2,466 | * | - | 6,903 | 1,342 | - | 93,311 | 70,000 | 400 | |
| (f) | 27,700 | - | - | - | 17,418 | 662 | 36,204 | 81,984 | 40,000 | 7,100 | |
| (g) | 61,850 | - | - | - | 12,571 | - | - | 74,421 | 60,000 | None | 38,210.70 |
| (h) | 1,460,000 | 22,386 | 412,150 | 145,904 | 33,763 | 13,469 | 23,821 | 2,111,493 | Not stated | 386,000 | 252,000 |
| (i) | 97,500 | 5,730 | - | - | 2,073 | 172 | 1,330 | 106,805 | 80,000 | 16,000 | 63,375 |
| (j) | 112,000 | 8,400 | - | - | 21,273 | 1,148 | 147,912 | 290,733 | 110,000 | 8,800 | |
| (k) | 78,000 | 921 | - | - | 12,774 | 96 | 114,744 | 206,535 | 91,000 | 10,900 | 51,000 |
| (l) | 1,150,750 | 61,630 | 105,000 | - | 15,713 | 1,225 | - | 1,334,318 | 420,000 | 27,500 | 405,379 |
| (m) | 65,000 | - | - | - | - | - | - | 65,000 | 47,000 | None | 47,000 |
| (n) | None | - | - | - | 2,978 | 300 | 3,800 | 7,078 | 5,325 | | |
| (o) | 1,388,500 | 595,180 | 406,545 | 151,407 | 44,795 | 26,349 | - | 2,612,776 | 472,000 | 539,000 | 286,642 |
| (p) | 259,000 | 92,340 | 16,500 | 3,379 | 35,914 | 26,905 | 14,075 | 448,113 | 92,000 | 62,000 | |
| (Q) | 176,000 | 3,700 | - | - | 9,519 | 285 | - | 189,504 | Not stated | None | 75,851 |
| (r) | 93,300 | 2,670 | 4,500 | 783 | 21,880 | - | 141,527 | 264,660 | 90,000 | None | |
| (s) | 116,500 | 9,969 | - | - | 3,560 | 1,567 | 4,833 | 136,429 | 97,500 | 27,900 | 71,000 |
| (t) | 1,067,500 | 88,950 | 201,165 | 37,206 | 1,899 | - | - | 1,396,720 | 500,000 | 58,000 | 377,500 |
| (u) | 137,000 | 21,235 | - | - | 547 | - | - | 158,782 | 70,000 | 40,000 | 34,000 |
| (v) | 449,500 | 5,000 | 414,000 | 182,375 | 1,430 | 600 | - | 1,052,905 | 221,000 | None | 170,000 |
| (w) | 33,800 | 3,214 | - | - | 172 | - | - | 37,186 | 25,000 | 6,800 | |
| (x) | 430,000 | ? | 124,500 | 26,254 | 26,254 | ? | ? | ? | ? | 89,400 | |
| (y) | 275,000 | 114,260 | 66,000 | 19,757 | ? | ? | ? | ? | ? | 53,000 | |
| (z) | 40,000 | 10,875 | ? | ? | 14,738 | ? | ? | ? | ? | 10,000 | |
| (aa) | 108,433 | ? | 85,200 | 24,594 | 4,200 | ? | ? | ? | ? | ? | |

* Data for (x) Jordan Valley Irrigation District, (y) Silver Lake Irrigation District, (z) Snow Creek Irrigation District, and (aa) Summer Lake Irrigation District are for 1933.

TABLE 9. INDEBTEDNESS OF IRRIGATION DISTRICTS IN FINANCIAL DIFFICULTY(continued)

| Key | TOTAL INDEBTEDNESS | | | LOAN APPLIED FOR | | | LOAN GRANTED | | |
|---|---|---|---|---|---|---|---|---|---|
| | Total for District | Per acre irrigated, 1933 | Per acre irrigable under refinancing plan | TOTAL | Per acre irrigated, 1933 | Per acre irrigable under refinancing plan | TOTAL | Per acre irrigated, 1933 | Per acre irrigable under refinancing plan |
| | $ | $ | $ | $ | $ | $ | $ | $ | $ |
| (a) | 371,519 | 186 | 177 | 50,000 | 25 | 24 | 35,000 | 18 | 17 |
| (b) | 73,474 | 95 | 95 | 40,000 | 52 | 52 | | | |
| (c) | 1,158,874 | 193 | 193 | 120,000 | 20 | 20 | | | |
| (d) | 671,389 | 146 | 134 | 100,000 | 22 | 20 | 93,000 | 20 | 19 |
| (e) | 93,311 | 10 | 8 | 70,000 | 7 | 6 | | | |
| (f) | 81,984 | 27 | 27 | 40,000 | 13 | 13 | | | |
| (g) | 74,421 | 72 | 72 | 60,000 | 58 | 58 | 38,210.70 | 37 | 37 |
| (h) | 2,111,493 | 310 | 168 | Not stated | | | 252,000 | 37 | 20 |
| (i) | 106,805 | 38 | 27 | 80,000 | 29 | 20 | 63,375 | 23 | 16 |
| (j) | 290,733 | 48 | 41 | 110,000 | 18 | 15 | | | |
| (k) | 206,535 | 73 | 60 | 91,000 | 32 | 26 | 51,000 | 18 | 14 |
| (l) | 1,334,318 | 169 | 161 | 420,000 | 53 | 51 | 405,379 | 51 | 49 |
| (m) | 65,000 | 16 | 8 | 47,000 | 11 | 6 | 47,000 | 11 | 6 |
| (n) | 7,078 | 7 | 7 | 5,325 | 5 | 5 | | | |
| (o) | 2,612,776 | 308 | 213 | 472,000 | 56 | 39 | 286,642 | 34 | 23 |
| (p) | 448,113 | 103 | 95 | 92,000 | 21 | 20 | | | |
| (q) | 189,504 | 47 | 40 | Not stated | | | 75,861 | 19 | 16 |
| (r) | 264,660 | 379 | 76 | 90,000 | 129 | 26 | | | |
| (s) | 136,429 | 29 | 22 | 97,500 | 21 | 16 | 71,000 | 15 | 12 |
| (t) | 1,396,720 | 141 | 140 | 500,000 | 51 | 50 | 377,500 | 38 | 38 |
| (u) | 158,782 | 30 | 26 | 70,000 | 130 | 113 | 34,000 | 63 | 55 |
| (v) | 1,052,905 | 84 | 84 | 221,000 | 18 | 18 | 170,000 | 14 | 14 |
| (w) | 37,186 | 22 | 22 | 25,000 | 15 | 15 | | | |
| (x) | ? | | | ? | | | | | |
| (y) | ? | | | ? | | | | | |
| (z) | ? | | | ? | | | | | |
| (aa) | ? | | | ? | | | | | |

TABLE 10. AREA, POPULATION, AND INDEBTEDNESS OF DRAINAGE DISTRICTS IN FINANCIAL DIFFICULTY

| Key | Name of District | Location County | Reclaimable area (acres) | Cropped area in 1933 (acres) | Reclaimable area under refinancing plan | Population | Number of farms |
|---|---|---|---|---|---|---|---|
| (bb) | Clatsop Co. Drainage Dist. No. 1 | Clatsop | 1,395 | 686 | 1,395 | 100 | 30 |
| (cc) | Coaledo Drainage District No. 11 | Coos | 797 | 326 | 797 | 100 | 15 |
| (dd) | Kingman Colony Drainage District | Malheur | 2,430 | 1,774 | 2,430 | 141 | 43 |
| (ee) | Malheur Drainage District | Malheur | 5,524 | 3,880 | 5,524 | 325 | 117 |
| (ff) | Nyssa-Arcadia Drainage District | Malheur | 3,903 | 3,720 | 3,903 | 300 | 66 |
| (gg) | Owyhee Drainage District | Malheur | 468 | 453 | 468 | 10 | 5 |
| (hh) | Scappose Drainage District | Columbia | 5,702 | 4,500 | 4,744 | 56 | 59 |
| (ii) | Ward Drainage District | Malheur | 432 | 432 | 432 | 5 | 4 |
| (jj) | Multnomah Drainage District | Multnomah | | | | | |

| | OUTSTANDING INDEBTEDNESS | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Key | Bonds | Bond int. delinquent and accrued | Warrants out-standing | Accrued interest on outstanding warrants | Other indebtedness | TOTAL INDEBTEDNESS | Amount of ** loan applied for | Bonds in default |
| | $ | $ | $ | $ | $ | $ | $ | $ |
| (bb) | 3,000 | 100 | 1,934 | 322 | - | 5,356 | 6,000 | 3,000 |
| (cc) | 22,000 | 705 | 1,606 | 300 | - | 24,611 | ? | 2,000 |
| (dd) | 34,000 | 3,870 | 2,046 | 710 | - | 40,626 | 11,000 | 8,000 |
| (ee) | 122,400 | 7,956 | - | - | 15 | 130,371 | 100,000 | 31,100 |
| (ff) | 47,500 | 2,760 | 1,326 | 120 | | 51,706 | 52,000 | 1,500 |
| (gg) | 13,700 | 1,900 | 34 | - | - | 15,634 | 11,000 | 1,400 |
| (hh) | 386,000 | 44,295 | 121,981 | 31,722 | 26,033 | 610,031 | 320,000 | 30,000 |
| (ii) | 18,400 | 3,312 | - | - | 150 | 21,862 | 16,000 | 1,400 |
| (jj) | - | - | - | - | - | - | 445,500 | - |

** Of the loans applied for, $235,500 for (hh); $325,000 for (jj), and $32,000 for (ee) have been approved.

## RELOCATION AREAS

In the discussion of problem land areas it was suggested in several instances that a possible solution to the problem would be to buy out the owners of this land and move them elsewhere. The question immediately arises: To where can they be moved? Since data on the amount of potential arable land in Oregon are not available, the best that can be done is to make an estimate.

Two courses appear open; one is to settle the present arable area more closely and the other is to reclaim new arable land.

### Areas Suitable for Closer Settlement

The principal area suitable for closer settlement is the Willamette Valley in western Oregon (see Exhibit 4). Included in this area are the agricultural lands in the counties of Lane, Benton, Linn, Polk, Marion, Yamhill, Washington, Clackamas, Multnomah, and Columbia*. According to the census, this area now contains 29,940 farms and 1,348,029 acres of crop land and plowable pasture.

It is believed that through subdivision of large farms and intensification of production in certain areas about 1,200 additional farms could be located in the Willamette Valley without additional clearing, drainage, or without the use of supplementary irrigation (see Exhibit 4, green area).

There are roughly 250,000 acres of wet lands in the Willamette Valley which at present are largely used for pasture. Studies conducted by the Soils Department of the Oregon Agricultural Experiment Station indicate the crop production on these lands can usually be doubled by tile draining. If drained these lands could be more closely settled to the extent of possible

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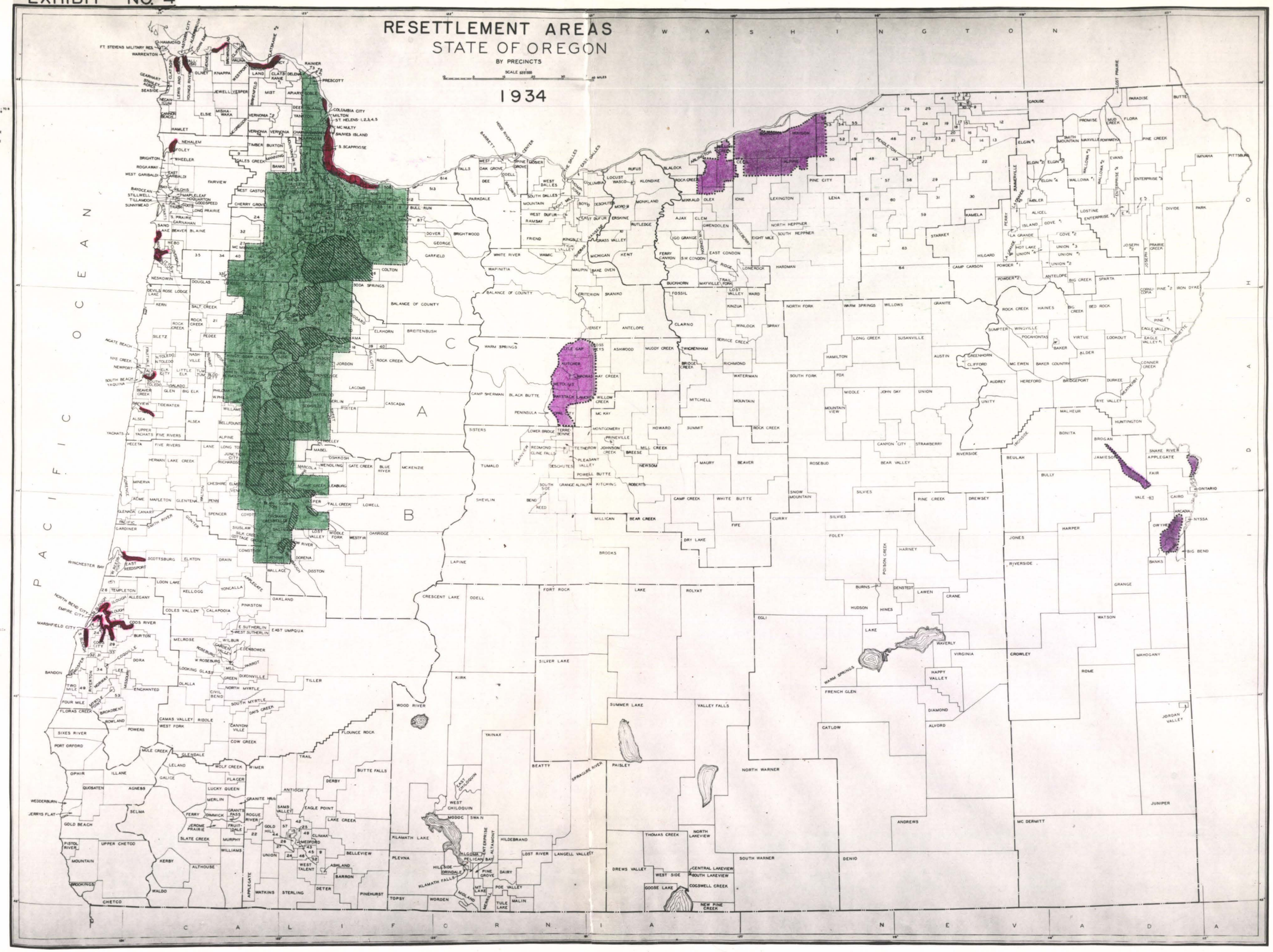
* Geographically, Columbia county lies outside of the Willamette Valley proper, but agriculturally it is usually classified with the Willamette Valley counties.

EXHIBIT NO. 4

# RESETTLEMENT AREAS
## STATE OF OREGON
BY PRECINCTS

SCALE 1/2 000 000

1934


PACIFIC OCEAN
WASHINGTON
CALIFORNIA
NEVADA
IDAHO
FT STEVENS MILITARY RES
WARRENTON
HAMMOND
ASTORIA
GEARHART
SEASIDE
CLATSKANIE
RAINIER
PRESCOTT
COLUMBIA CITY
MILTON
ST HELENS L2,3,4,5
MC NULTY
SAUVIES ISLAND
S SCAPPOOSE
HOOD RIVER
BARRETT
DRIVE
CENTER
WASCO
DUFUR
DESCHUTES
JEFFERSON
CROOK
GRANT
WHEELER
GILLIAM
SHERMAN
MORROW
UMATILLA
UNION
WALLOWA
BAKER
MALHEUR
HARNEY
LAKE
KLAMATH
LINCOLN
TILLAMOOK
CLATSOP
COLUMBIA
WASHINGTON
CLACKAMAS
MARION
POLK
YAMHILL
BENTON
LINN
LANE
DOUGLAS
COOS
CURRY
JOSEPHINE
JACKSON
KLAMATH
LAKE
HARNEY
MALHEUR
BAKER
UNION
WALLOWA
GRANDE RONDE
SNAKE
IMNAHA
PITTSBURG
PINE CREEK
ENTERPRISE
JOSEPH
PRAIRIE CREEK
IRON DYKE
EAGLE VALLEY
CONNOR CREEK
HUNTINGTON
BROGAN
JAMIESON
SNAKE RIVER
APPLEGATE
FAIR
ONTARIO
VALE
CAIRO
ARCADIA
NYSSA
OWYHEE
BIG BEND
BANKS
HARPER
JONES
RIVERSIDE
GRANGE
WATSON
MAHOGANY
ROME
CROWLEY
VIRGINIA
WAVERLY
LAKE
HAPPY VALLEY
FRENCH GLEN
DIAMOND
ALVORD
CATLOW
JORDAN VALLEY
JUNIPER
MC DERMITT
ANDREWS
DENIO
NORTH WARNER
SOUTH WARNER
SUMMER LAKE
VALLEY FALLS
PAISLEY
BEATTY
SILVER LAKE
KIRK
FORT ROCK
CRESCENT LAKE
ODELL
LAPINE
BROOKS
FIFE
CURRY
SILVIES
FOLEY
BURNS
DENSTEDT
LAWEN
CRANE
HUDSON
HINES
EGLI
DREWSEY
PINE CREEK
CAMP CREEK
WHITE BUTTE
SNOW MOUNTAIN
ROSEBUD
BEAR VALLEY
CANYON CITY
STRAWBERRY
RIVERSIDE
BEULAH
BULLY
PINE CITY
IONE
LEXINGTON
LENA
KAMELA
STARKEY
HILGARD
CAMP CARSON
POWDER
ANTELOPE
BIG CREEK
SPARTA
ROCK CREEK
HAINES
BED ROCK
WINGVILLE
POCAHONTAS
VIRTUE
LOOKOUT
SUMPTER
BAKER
ALDER
GREENHORN
CLIFFORD
MC EWEN
BAKER COUNTRY
BRIDGEPORT
DURKEE
AUDREY
HEREFORD
UNITY
RYE VALLEY
MALHEUR
BONITA
MOUNTAIN VIEW
HAMILTON
AUSTIN
LONG CREEK
SUSANVILLE
GRANITE
WARM SPRINGS
WILLOWS
NORTH FORK
MITCHELL
MOUNTAIN
RICHMOND
WATERMAN
SERVICE CREEK
SPRAY
CLARNO
JOHN DAY
UNION
MIDDLE FORK
FOX
SOUTH FORK
TWICKENHAM
BRIDGE CREEK
WILLOW CREEK
MUDDY CREEK
ASHWOOD
WARM SPRINGS
ANTELOPE
JERSEY
WINLOCK
KINZUA
WARD
LOST VALLEY
TRAIL
FORK
BUCKHORN
MAYVILLE
LONEROCK
HARDMAN
NORTH HEPPNER
SOUTH HEPPNER
EIGHT MILE
GWENDOLEN
AJAX
CLEM
MIKKALO
OLEX
ROCK CREEK
BLALOCK
RUFUS
LOCUST GROVE
DODELL
DEE
WEST DUFUR
RAMSAY
FRIEND
KINGSLEY
GRASS VALLEY
MICHIGAN
KENT
MAUPIN
BAKE OVEN
PINE RIDGE
CRITERION
SKANIKO
BALANCE OF COUNTY
WHITE RIVER
WAMIC
WAPINITIA
DOVER
BRIGHTWOOD
GEORGE
GARFIELD
PARKDALE
MOUNTAIN
SOUTH DUFUR
EAST DUFUR
ERSINE
RUTLEDGE
KLONDIKE
MONKLAND
MORO
DESCHUTES
BOYD
WEST DALLES
SOUTH DALLES
THE DALLES
EAST DALLES
CHENOWETH
COLUMBIA
WASCO
RUFUS
BLALOCK
ROCK CREEK
MIKKALO
OLEX
IONE
LEXINGTON
LENA
PINE CITY
KAMELA
STARKEY
ALICEL
LOSTINE
ENTERPRISE
WALLOWA
ELGIN
SMITH MOUNTAIN
MAXVILLE
ROWENA
MUD CREEK
FLORA
PARADISE
BUTTE
LOST PRAIRIE
GROUSE
DIVIDE
PARK
PERRY
LA GRANDE
ISLAND
GOVE
COVE
HOT LAKE
UNION
JOSEPH
PRAIRIE CREEK
IRON DYKE
PINE
EAGLE VALLEY
CONNOR CREEK
ROMEO
DURKEE
BRIDGEPORT
HEREFORD
AUDREY
CLIFFORD
GREENHORN
MC EWEN
BAKER COUNTRY
ALDER
LOOKOUT
VIRTUE
POCAHONTAS
WINGVILLE
SUMPTER
ROCK CREEK
HAINES
BIG CREEK
BED ROCK
GRANITE
WILLOWS
WARM SPRINGS
NORTH FORK
SPRAY
CLARNO
JOHN DAY
UNION
MIDDLE FORK
FOX
SOUTH FORK
MOUNTAIN VIEW
HAMILTON
AUSTIN
LONG CREEK
SUSANVILLE

1,500 to 2,000 new families.

Another possibility for increasing the number of farms in the Willamette Valley is through land clearing operations. At present, just about half of the land in farms is used as crop land, or is in plowable pasture. Most of the remaining farm land is in timber or stumps. It is believed that about 750,000 acres of this land could be cleared and devoted to agriculture. About 2,500 families could locate on this land as much of it is in areas suitable for fairly intensive production.

Clearing is steadily going forward in this region. Many farmers do clearing work during the winter months when the farm work is slack. A common estimate of progress is about one-half acre per farm per year. This may appear to be slow clearing, but in actuality, the labor involved in clearing large fir stumps is tremendous and it is a real accomplishment.

It is believed that this method of clearing is the only method that is economically feasible. If regular wages were paid, the cost would probably exceed the value of the land. However, if the farmer can use what would otherwise be largely waste time he can afford to work for a rather low return.

The most promising opportunity for a closer settlement in this area is by providing supplementary irrigation. While this area is in a 40 inch rainfall belt, practically none of this precipitation occurs between June 1 and September 1. Where water is provided through this dry period a marked increase in production is obtained for grain, hay, fruit, and other crops.

It is estimated that a maximum of 1,000,000 acres in the Willamette Valley is irrigable. In actual practice, however, it is unlikely that over 500,000 will be irrigated due to the physical difficulties and cost of putting water on land of uneven contour. The 500,000 acres most likely to be irrigated is shown by the hachured area in Exhibit 4. There is at present some irrigation, both by pumping and gravity, but no large projects have been con-

structed or even seriously contemplated as yet. Each year, however, additional farmers are becoming interested in irrigation and additional private irrigation systems are going in. The deciding factor as to how much of this area will eventually be irrigated is the cost. If it can be demonstrated that large gravity projects can be built at a reasonable low cost per acre irrigated, there is but little doubt that such projects will receive enthusiastic approval. It is believed that 10,000 to 15,000 new farms could be created on this 500,000 acres. These farms would be subdivisions of farms now existing.

Aside from the Willamette Valley, there does not appear to be much opportunity for closer settlement of land now in farms. A few new farms could probably be created on the better lands in the wheat belt of northeastern Oregon, but there would not be enough of these to care for the wheat farmers in this area now on submarginal farms. The irrigated lands of eastern and southern Oregon offer a better opportunity for closer settlement. Some of these areas are not fully settled, and it is probable that 500 new farms could be added to these areas without causing a water shortage. These potential locations are widely scattered and no attempt has been made to map them. Few individual districts will accommodate more than fifteen or twenty families.

## Areas Suitable for Reclamation

The best information available indicates that most of the large bodies of productive land in Oregon have already been reclaimed. However, there are still a few irrigable lands and wet areas that might be reclaimed profitably.

### Possible Irrigable Lands

Aside from the Willamette Valley, where irrigation would intensify rather than reclaim land, there appear to be but three prospective irrigation projects of any magnitude. These are:

1. The Vale and Owyhee projects in Malheur county.
2. The North Unit project in Jefferson county.
3. The John Day project in Morrow and Umatilla counties.

Of these, the Vale and Owyhee projects are already partly constructed and appear to be the only ones that are likely to be constructed in the immediate future.

Before either the North Unit or John Day projects can be built, additional data will probably be needed to prove that construction costs can be kept within economic limits, and to prove that an adequate water supply can be delivered to the land under consideration. For this reason it is impossible at this time to estimate with any accuracy just how many farms could be located on these lands. Present data indicates that around 2,500 farms would be about the limit for these two projects, but the figure is subject to revision either upward or downward.

The Vale and Owyhee projects are already partly settled and the latest information indicates that all new lands which may be brought in during 1935 are already spoken for. However, during 1936, 1937, and 1938, it is anticipated that water will be available for an additional 60,000 to 65,000 acres. This area will provide self-sustaining farm units for 1,000 to 1,200 new families.

Aside from the three projects mentioned, further expansion of irrigation in eastern Oregon will depend on how much new storage can be developed. Present stream flow and reservoir site data do not indicate that much added development is feasible, but these data are by no means complete and new data may be developed which will change this situation.

Lands Needing Drainage

There are probably 75,000 acres of tide flats and slough lands along the Columbia River and along the coast from Astoria to Coos Bay, which at present are either entirely undrained or are only partially drained, that could be reclaimed by drainage. Most of these lands are free of stumps, although some will need both drainage and clearing. These lands are very

productive, and if diked and drained are probably capable of supporting 3,000 self-supporting farms. This land is practically all in private ownership at present and is generally utilized for pasture for dairy stock during the months it is free from water.

Lands Needing Clearing.

Aside from the uncleared lands on Willamette Valley farms which have already been discussed, it appears doubtful if it is economically feasible to clear any more land in this state. There are some areas of uncleared land not in farms that would be suitable for agriculture if conditions ever justified the heavy expense required to put such land under plow. The extent and location of these lands is not fully known at present, but it is believed that these lands do not constitute any considerable area.

Several instances have been noted recently where the press has conveyed the idea that Oregon has large areas of reclaimable stump land. It is believed that such statements were made without having at hand all the facts pertaining to these lands. Any program that results in farmers being placed on uncleared stump land with the hope that they will reclaim these lands will likely result in the creation of new problem areas.

## SUGGESTED LAND USE POLICIES

Throughout the preceding discussion several opinions have been offered concerning possible solutions for the specific land problems mentioned. It should be remembered, however, that land problems have many ramifications and though one problem area is adjusted another may "break out" even before the first job is well under way. An excellent illustration of this in Oregon is the present race between the rural rehabilitation division of the relief administration and the unscrupulous real estate dealers who are selling low quality cut-over lands for farming purposes. In some sections at the present

time the dealers appear to be creating new relief cases just about as fast as the rural rehabilitation officials can salvage old cases.

It is believed that a fairly permanent solution to Oregon's land problems can come in but one way. This method is (1) to make a complete physical and economic inventory of Oregon's land resources; (2) from these data develop a classification plan that will indicate the most advantageous use for the various lands; and (3) secure the necessary legislation and administrative organization to put this land classification program into operation and keep it operating.

Among other possible benefits, it is believed that such a plan will:

1. Show where the cost of local government may be reduced by eliminating maintenance of schools, roads, and other public services for scattered settlements on submarginal agricultural lands.

2. Provide a sound basis for a program of highway and road development and for extension of facilities such as telephone and electric lines.

3. Indicate the extent and location of areas adapted to more intensive use and therefore offering opportunities for development and for the location of new settlers.

4. Protect new settlers and buyers of farms from wasting their savings and efforts on lands unsuited to agricultural production.

5. Show where public relief expenditures may be reduced by withdrawing relief from people who persist in living on submarginal lands where they are wasting their efforts and where there is no possible hope that they can become self-supporting.

6. Provide factual data that will show areas wherein rural rehabilitation can be expected to succeed insofar as the land is responsible for successful rehabilitation.

7. Provide a factual foundation for more accurate property assessment and taxation.

8. Provide factual information for an intelligent policy of dealing with county, state and other publicly owned lands.

9. Provide factual information which will permit the drawing up of legislation necessary to control unwise and uneconomic

subdivision and other land exploitation schemes.

10. Indicate areas where soil and climatic conditions are conducive to the development of special enterprises, such as fruit growing, poultry, dairying, vegetable production, etc.

If these objectives can be attained most of Oregon's land problems can soon be solved in a rather permanent manner.

Such a program must be based on sound factual data. If based only on opinions chaos will likely result. It is believed that the principal physical and economic facts needed to put such a program on a sound basis are as follows.

Physical Data:

1. Reasonably accurate base maps showing the location of waterways, railroads, highways, cities, towns, habitations, schools, power lines, telephone lines, rural industrial plants, dams, reservoirs, irrigation and drainage ditches, and legal subdivision boundary lines.

2. Topographic maps showing elevations, contours, and slope by classes of steepness and roughness.

3. Detailed soil maps showing classification of the various soils according to their physical and chemical properties.

4. Climatic maps showing from existing data the amount of rainfall, length of growing season and other pertinent data, such as amount of sunlight and velocity of wind.

5. Cover maps showing in reasonable detail the present types of cover found upon the land.

6. Maps and tabular material showing ground water, stream flow, reservoir sites, and other similar data indicating available supplies of water for domestic use and irrigation.

7. Maps and tabular material showing crop indices or relative yield figures for each principal crop on each soil type.

8. Maps showing areas subject to overflow and supplementary tabular data showing usual overflow dates, duration of flood, etc.

9. Maps showing areas susceptible of improvement by drainage, and tabular material showing cost and benefits of such drainage.

Economic Data:

1. Status of ownership, including intent.
2. Assessed valuation.
3. Taxation and tax delinquency of land.
4. The cost of public services, such as roads and schools.
5. History of abandonment of land for farm purposes for typical areas.
6. Study of the present and future needs for agricultural lands.
7. The cost of preparing land for generalized and specialized agricultural and forest crops.
8. Rural fire insurance rates and losses.
9. Status of part-time and subsistence farming.
10. Farm cost of production data.
11. The extent and distribution of governmental financial aid to rural families.
12. Mortgage indebtedness covering both amount and delinquency.
13. Markets, transportation facilities, etc.
14. Farm business analysis records.

Some of the factual data needed for the program outlined is now available. Among the important facts now available are detailed soil maps for twelve counties, U.S.G.S. topographic maps for about 40 per cent of the state area, and soil classification maps for many of the 47 irrigation districts in the state. Moreover, about one-third of the state area (national forests, state forests, reforestation areas, etc.) has already been classified to some extent or has been dedicated to a specific use which amounts to classification. Furthermore, it is expected that the vast area of public domain will soon receive classification as it has been withdrawn from entry for that purpose.

It is realized that completion of the suggested program will entail considerable cash expenditure, and will require from five to ten years to get into full operation even if fully supported by cash and public opinion. Nevertheless, when the history of Oregon's land problems is reviewed and the

costs of past mistakes are computed, the program outlined does not seem so huge. Moreover, Oregon is not yet through with land problems and it is believed that enormous losses will continue to accummulate for years to come unless strong, decisive action is taken to solve these problems and prevent their reoccurrence.